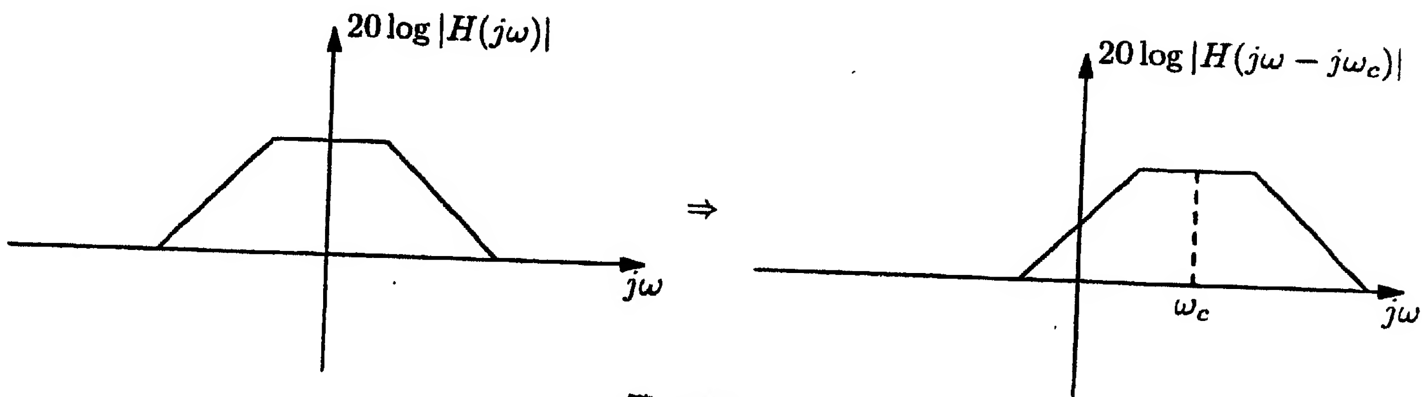


$20 \log |H(j\omega)|$
$j\omega$
$\Rightarrow$
$20 \log |H(j\omega - j\omega_c)|$
ω_c
$j\omega$

Figure 1

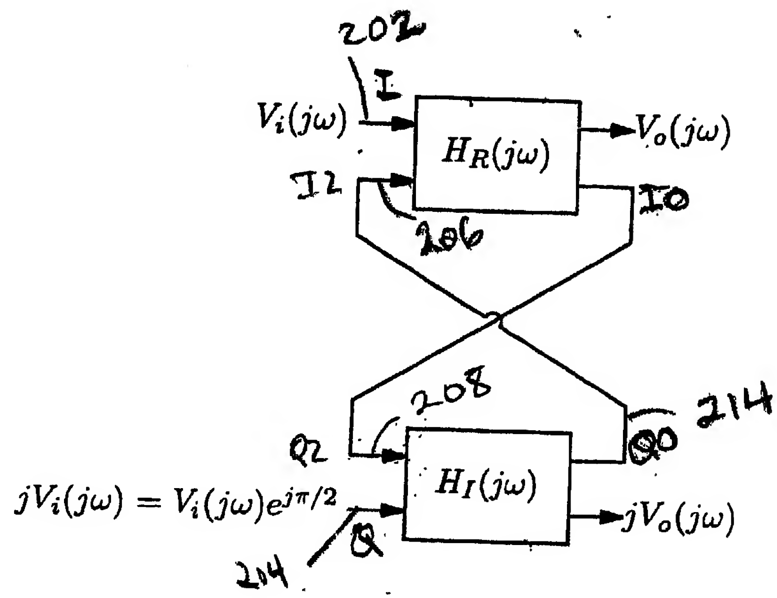

202
I
$V_i(j\omega)$
$H_R(j\omega)$
$V_o(j\omega)$
I2
206
IO
208
Q2
214
QO
$H_I(j\omega)$
$jV_i(j\omega) = V_i(j\omega)e^{j\pi/2}$
Q
214
$jV_o(j\omega)$

FIGURE 2

300

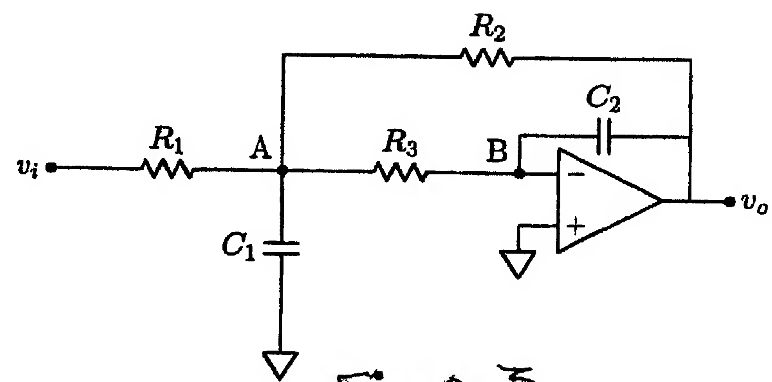


FIGURE 3

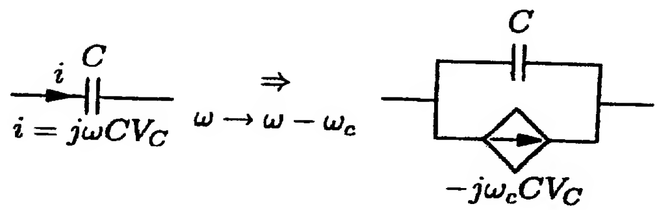

C
i
$i = j\omega C V_C$
$\Rightarrow$
$\omega \rightarrow \omega - \omega_c$
C
$-j\omega_c C V_C$

FIGURE 4

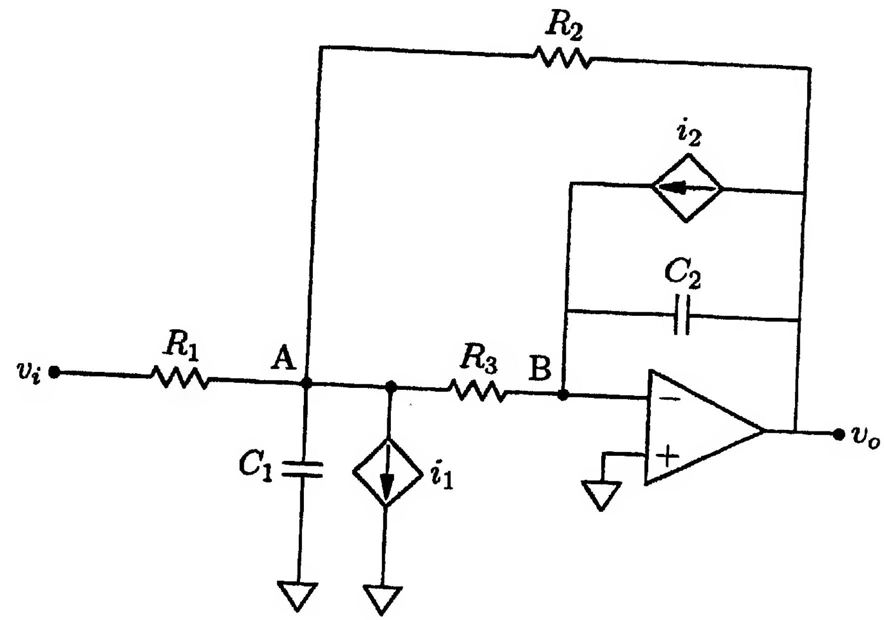


FIGURE 5

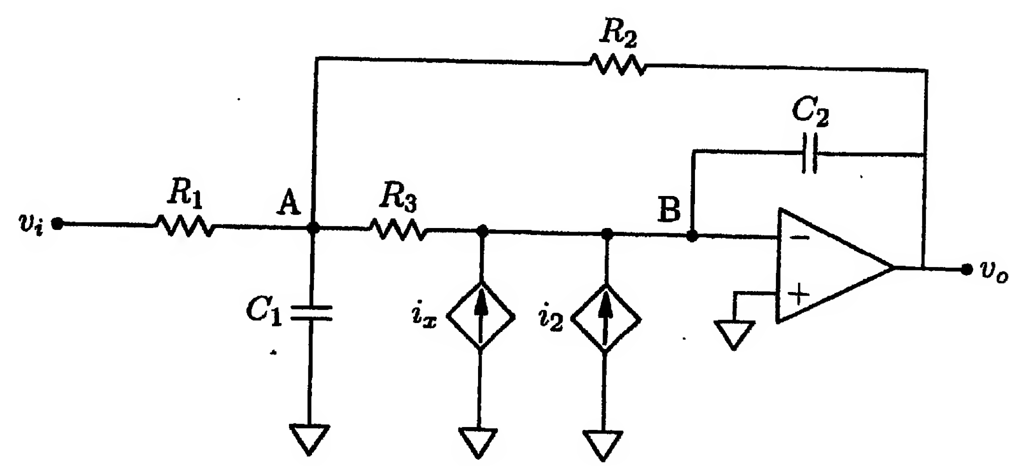


Figure 6:

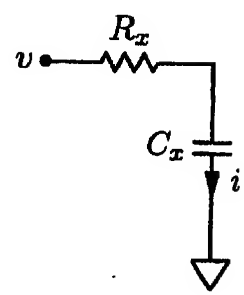


Figure 7:

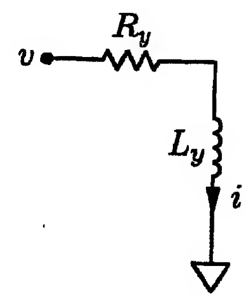


Figure 8:

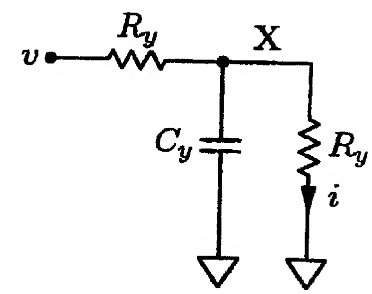
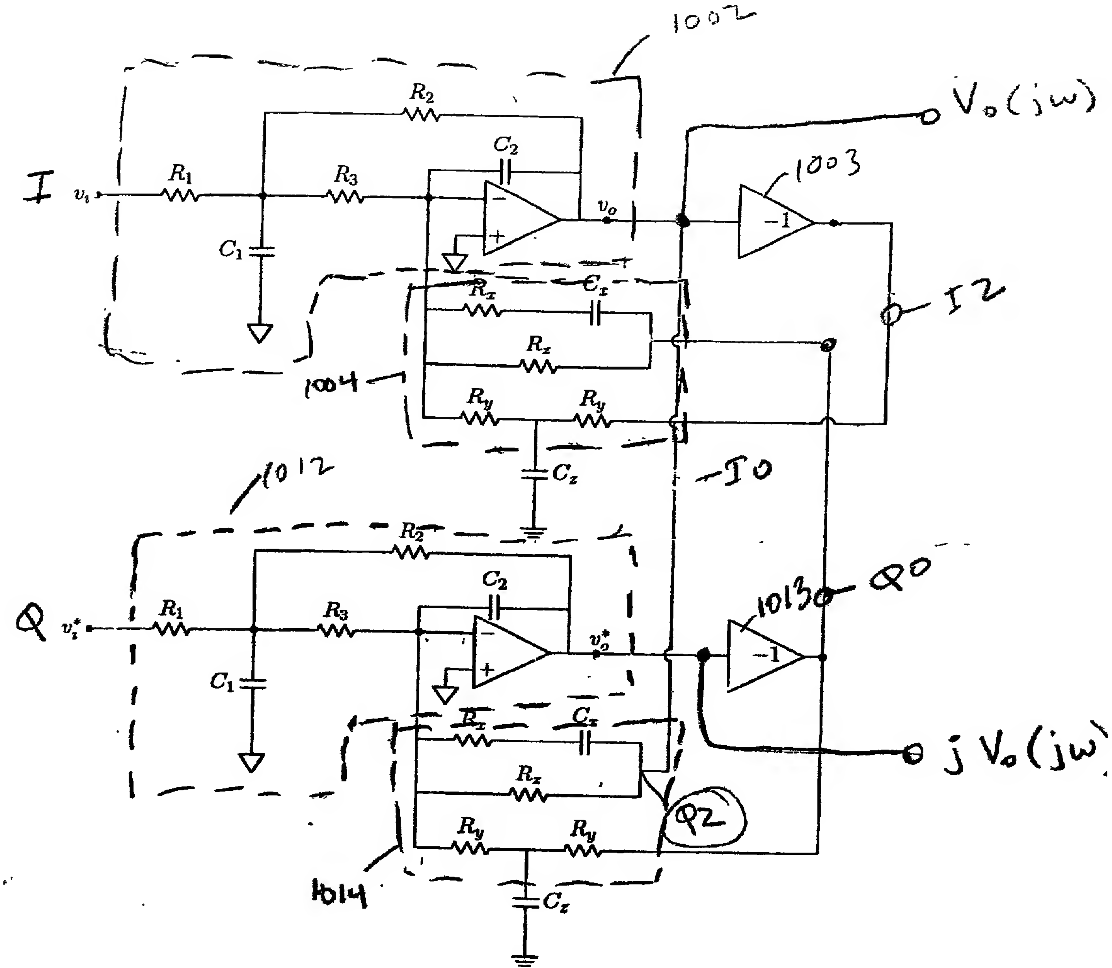


FIGURE 9



$$
\begin{aligned}
H_0 &= -\frac{R_2}{R_1} \\
\omega_0^2 &= \frac{1}{C_1 C_2 R_2 R_3} \\
\frac{\omega_0}{Q} &= \frac{1}{C_1}\left(\frac{1}{R_1}+\frac{1}{R_2}+\frac{1}{R_3}\right)
\end{aligned}
$$

$$
\begin{aligned}
R_y &= \frac{1}{2\omega_c^2 C_2}\,\frac{\omega_0}{Q} \\
C_y &= \frac{2}{R_y}\,\frac{1}{\frac{\omega_0}{Q}} \\
&= 4\omega_c^2 C_2 \left(\frac{\omega_0}{Q}\right)^2
\end{aligned}
$$

$$
\begin{aligned}
R_x &= \frac{1}{\omega_c C_2} \\
C_x &= \frac{1}{R_x \frac{\omega_0}{Q}} \\
&= \frac{\omega_c C_2}{\frac{\omega_0}{Q}} \\
R_z &= 1/\omega_c C_2
\end{aligned}
$$

Figure 10: